

ABSTRACT

The invention provides novel methods for treating disease based upon the medicinal use of lipids and phospholipids covalently bound to physiologically acceptable monomers or polymers. Phosphatidylethanolamine moieties conjugated to physiologically acceptable monomers and polymers (PE conjugates) manifest an unexpectedly wide range of pharmacological effects, including stabilizing cell membranes; limiting oxidative damage to cell and blood components; limiting cell proliferation, cell extravasation and (tumor) cell migratory behavior; suppressing immune responses; and attenuating physiological reactions to stress, as expressed in elevated chemokine levels. The surprisingly manifold pharmacological properties of the PL-conjugates allow for the invention, disclosed herein, of novel methods for the treatment of a diverse range of disease states, including obstructive respiratory disease, including asthma; colitis and Crohn's disease; central nervous system insult, including blood brain barrier compromise, ischemic stroke, and multiple sclerosis; contact dermatitis; psoriasis; cardiovascular disease, including ischemic conditions and prophylaxis for invasive vascular procedures; cellular proliferative disorders, including anti-tumor vasculogenesis, invasiveness, and metastases; anti-oxidant therapy; hemolytic syndromes; sepsis; acute respiratory distress syndrome; tissue transplant rejection syndromes; autoimmune disease; viral infection; and hypersensitivity conjunctivitis. The therapeutic methods of the invention include administration of phosphatidylethanolamine bound to carboxymethylcellulose, heparin, hyaluronic acid, polyethylene glycol, and hemacel. Disclosed herein are also new compounds comprised of phospholipid moieties bound to low molecular weight monomers and dimers, including mono- and disaccharides, carboxylated disaccharides, mono- and dicarboxylic acids, salicylates, bile acids, and fatty acids.